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- (54) Title of the invention: Digital broadcast receiving device
- (57) Abstract:

Problem to be solved: To provide a digital broadcast receiving device which does not automatically charge when a reserved pay program to be viewed becomes impossible to view.

Solution: The device includes a user interface 21 for a viewing reservation registration of a selected broadcast program, a purchase guidance present part 7d for presenting a purchase start guidance display that guides a purchase start of the chargeable broadcast program to users when the viewing reservation program is chargeable prior to the start of a viewing operation of the broadcast program as the broadcast starting time for the reserved broadcast program carries, a purchase detection part 7e for detecting a purchase operation indicating the purchase start by the user who performs operations with regard to the digital broadcasting receiving device within a predetermined limited time after showing the purchase start guidance presentation, and a viewing reservation release part 7c for

releasing both the purchase and the viewing reservation of the broadcast program whose viewing reservation registration has been made, when the purchase operation is not performed within the limited time.

[Claims]

[Claim 1] A digital broadcast receiving device which can make viewing operation of this program start when it continues till viewing reservation time of the mentioned above program which was provided with a user interface which can carry out viewing reservation registration of a selected program, and when viewing reservation registration was made, characterized by including a purchase guide presenting means which presents a purchase guide display in which it shows a purchase start of this paid broadcasting program to a user when the mentioned above program by which viewing reservation registration was made is a paid broadcasting program and it continues till the mentioned above viewing reservation time, a purchase detection means to detect purchase operation which shows that this purchase start was directed when a user performed a certain operation to the digital broadcast receiving device concerned in the time limit preliminary defined after presentation of this purchase guide display, a viewing reservation release means in which a viewing reservation of the mentioned above paid broadcasting program in which viewing reservation registration was made is made to cancel when this purchase operation is not made in the mentioned above time limit, and when this purchase operation is made in the mentioned above time limit and broadcast of the mentioned above paid broadcasting program is completed.

[Claim 2] In the digital broadcast receiving device according to claim 1, the mentioned above purchase guide display in which it shows a purchase start of a paid broadcasting program within a preview period of the mentioned above paid broadcasting program, in a reservation purchase start initial screen format to which it shows a reservation purchase start of the mentioned above paid broadcasting program included and transmitted to a broadcasting signal, and outside of a preview period of the mentioned above paid broadcasting program, in a digital broadcast receiving device, the purchase guide display by an alarm sound or an audio guidance preliminary defined as notice information in which it shows propriety of a reservation purchase start.

[Claim 3] In the digital broadcast receiving device according to claim 1 or 2, the mentioned above purchase guide presenting means, when a power supply of a main reception part which displays video audio information of a program makes a normal state of a power turn change automatically from a waiting state of OFF and it is started, a digital broadcast receiving device including a waiting state setting-out means to return a power supply of the mentioned above main reception part to a waiting state made OFF again when the mentioned above viewing reservation release means makes a viewing reservation of the mentioned above program by which viewing reservation registration was canceled.

[Claim 4] In the digital broadcast receiving device according to claims 1 to 3, when the mentioned above viewing reservation release means makes a viewing reservation of the mentioned above paid broadcasting program in which viewing reservation registration was

made cancel based on the mentioned above purchase operation not having been made in the mentioned above time limit, a digital broadcast receiving device provided with a memory area in which an E-mail which shows that a viewing reservation of this paid broadcasting program is canceled, and fee collection is not made can be stored.

[Detailed description of the invention]

[0001]

[Field of the invention] This invention relates to the digital broadcast receiving device which receives the digital broadcasting by a satellite, a cable or a terrestrial wave. In particular, it is related with the digital broadcast receiving device according to a viewing reservation of a paid broadcasting program like a pay-per-view program.

[0002]

[Description of the prior art] If it is in the television broadcasting which used the satellite like common knowledge, the broadcast service of a paid broadcasting program other than a free broadcast program already existed. There is a pay-per-view PPV (Pay Per View) program method with which audience fee is charged as service arrangement of a paid broadcasting program per program other than the month contract method, a contract is made to a month unit for every broadcast channel.

[0003] On the other hand, the broadcast receiving set (it is next written as a receiving set) which receives digital broadcasting, the program information about the program by which broadcast will be planned the program broadcast now and from now on is displayed as a schedule, the case where reservation selection of the program by which broadcast will be planned from now on is made a viewing

reservation of this program or reservation of picture recording is carried out and, when it reaches at the broadcast start time of this program by which reservation selection was made, this program tunes in, and in the case of a pay-per-view PPV program, after purchase processing is carried out, the display output of video information, the audio information, and the like is carried out to a television monitor screen or it is recorded on a recording device.

[0004]

[Problems to be solved by the invention] As control of recording is made and recording is started, when a receiving set sends out a remote control code to recording devices, such as VTR, using a video mouse and the like when the reserved program is a program of reservation of picture recording, when the program of this reservation of picture recording is a paid broadcasting program, in spite of not playing, viewing this paid broadcasting program later, the inconvenience of being charged for recording does not arise.

[0005] By however, the case where the reserved program is a program of a viewing reservation. And when this viewing reservation program is a paid broadcasting program, even if it is a case where the situation where the TV viewer (user) who made the viewing reservation becomes absent, and it becomes impossible to view this program occurs after that, when it reached at the broadcast times of this program, the display output of this program will be automatically carried out to a television monitor device, and the problem that the fee collection about this reserved program will be made had occurred.

[0006] When this invention is made in view of this problem and it reaches at the viewing reservation time of the program by which the viewing reservation was made, it is judged whether this program is a paid broadcasting program like a pay-per-view PPV program, if it is a pay-per-view PPV program, it will carry out output presentation of the purchase guide display which asks the existence of the purchase start of this pay-per-view PPV program to a TV viewer (user). Whether a certain purchase operation of the TV viewer (user) who shows the purport of a purchase start to the receiving set with which the viewing reservation was registered was made, and by always supervising, when there is no operation into the time limit defined preliminary in any way and directions of the purport of a purchase start are not made, a means by which the TV viewer (user) who made the viewing reservation performs automatically judgment that is absent, makes the purchase of the pay-per-view PPV program concerned cancel, and makes a viewing reservation cancel (cancellation) in preparation for a receiving set.

[0007]

[Means for solving the problem] The claim 1 according to this invention in a digital broadcast receiving device which can make viewing operation of this program start when it continues till viewing reservation time of the mentioned above program when viewing reservation registration was made, including a user interface which can carry out viewing reservation registration of a selected program, a purchase guide presenting means which presents a purchase guide display in which it shows a purchase start of this paid broadcasting program to a user when the mentioned above program by which viewing reservation

registration was made is a paid broadcasting program and it continues till the mentioned above viewing reservation time, a purchase detection means to detect purchase operation which shows that this purchase start was directed when a user performed a certain operation to the digital broadcast receiving device concerned in the time limit preliminary defined after presentation of this purchase guide display, when this purchase operation is not made in the mentioned above time limit, and when this purchase operation was made in the mentioned above time limit and broadcast of the mentioned above paid broadcasting program is completed, it is considered as a digital broadcast receiving device provided with a viewing reservation release means of which a viewing reservation of the mentioned above paid broadcasting program in which viewing reservation registration was made is cancelled. [0008] Namely, when a program by which viewing reservation registration was carried out is a paid broadcasting program like a pay-per-view PPV program, showing a TV viewer (user) an annunciator for checking a purchase start of this paid broadcasting program. When it always supervises and operation to a receiving set is not made at all by this fixed time lapse, whether a certain a TV viewers (user) operation is made to fixed time lapse defined preliminary, it judges that a TV viewer (user) who made the viewing reservation is absent, and user is in a state in which cannot be viewed a paid broadcasting program by which the viewing reservation was made, the purchase of the paid broadcasting program concerned is canceled, and a viewing reservation is canceled (cancellation).

A TV viewer (user) who made the viewing reservation becomes absent, and even if it is a case where the situation in which user cannot view occurs, in spite of not viewing a paid broadcasting program like a pay-per-view PPV program, although charged, inconvenient generating can be deterred at the time.

[0009] According to claim 2 of this invention, in a digital broadcast receiving device according to the mentioned above claim 1, the mentioned above purchase guide display to which it shows a purchase start of a paid broadcasting program within a preview period of the mentioned above paid broadcasting program, in a reservation purchase start initial screen format in which it shows a reservation purchase start of the mentioned above paid broadcasting program included and transmitted to a broadcasting signal, and outside of a preview period of the mentioned above paid broadcasting program, it is considered as a digital broadcast receiving device which is the purchase guide display by an alarm sound or an audio guidance preliminary defined as notice information in which it shows propriety of a reservation purchase start.

[0010] When a time of showing a purchase start annunciator which makes the purchase of a paid broadcasting program and made the viewing reservation start is within a preview period of this paid broadcasting program, a video signal and an audio signal for purchase start guidance about this paid broadcasting program transmitted as a broadcasting signal are shown to a TV viewer (user) as it is, an audio signal (for example, an alarm sound) preliminary defined on the other hand when it was out of a preview period of this paid broadcasting program or notice information which shows a TV viewer

(user) to propriety of a purchase start using an audio guidance is shown, it can prevent barring superfluously viewing of a video signal and an audio signal which are transmitted as a broadcasting signal.

[0011] According to claim 3 of this invention, in a digital broadcast receiving device according to the mentioned above claim 1 or 2 the, when a power supply of a main reception part which displays video audio information of a program makes a normal state of a power turn change automatically from a waiting state of OFF and the mentioned above purchase guide presenting means is started, when the mentioned above viewing reservation release means makes a viewing reservation of the mentioned above program by which viewing reservation registration was made cancel, it is considered as a digital broadcast receiving device provided with a waiting state setting out means to return a power supply of the mentioned above main reception part to a waiting state made OFF again.

[0012] Even if it is a case where canceled the purchase of a viewing reservation program, and a viewing reservation is canceled, a TV viewer's (user) absence cannot be detected and user cannot view, as it returns to a waiting state automatically when a main reception part is started from a waiting state, generating of useless power consumption can be deterred.

[0013] According to claim 4 of this invention, in a digital broadcast receiving device according to the mentioned above claims 1 3, when the mentioned above viewing reservation release means makes a viewing reservation of the mentioned above paid broadcasting program in which viewing reservation registration was made cancel based on

the mentioned above purchase operation not having been made in the mentioned above time limit, a viewing reservation of this paid broadcasting program is canceled, and it is considered as a digital broadcast receiving device provided with a memory area in which an E-mail which shows that fee collection is not made can be made to store. [0014] As a viewing reservation stop notification message which shows that a viewing reservation is canceled using an E-mail to a TV viewer (user), and fee collection is not made is stored in a memory in a receiving set as an E-mail, the TV viewer (user) can grasp certainly that a viewing reservation of a paid broadcasting program to which user is not viewing is canceled a priori, and fee collection is not made after going home.

[0015]

[Embodiment of the invention] Next, an example of the embodiment of the digital broadcast receiving device according to this invention is explained referring to a drawing. Drawing 1 is a system configuration drawing showing the fundamental system configuration about the digital broadcast receiving device according to this invention. The digital broadcast receiving device of this invention includes main reception part 10, sub reception part 20.

[0016] The sub reception part 20 is usually always in working condition, and by the user interface part (user I/F part) 21, the information about operation and remote control operation of a TV viewer's (user) main part of a receiving set is constituted so that it may always be detected with the microcomputer 22.

The user's operation information detected with the microcomputer 22 is notified to main process device MPU

7 of the main reception part 10 by the communication bus 24.

[0017] Main process device MPU 7 can set up the viewing reservation time of a viewing reservation program conversely to the reservation timer 22a formed in the microcomputer 22 of the sub reception part 20 by the communication bus 24. Main process device MPU 7 can direct the setting operation made to set it as the waiting state which makes a main reception part power OFF by the communication bus 24 to the waiting state set part 22b provided in the microcomputer 22 of the sub reception part 20.

[0018] For example, in the case where the state of the main reception part 10 suits a waiting state (state of power OFF), when it continues till the viewing reservation time set as the reservation timer 22a, the microcomputer 22 of the sub reception part 20, the waiting state of the main reception part 10 is made to set it as a normal state (state of a power turn) by the communication bus 24, and it is reported to main process device MPU 7 that it escaped from the waiting state (state of power OFF), and the viewing execution operating state of the viewing reservation program was started. When the state of the main reception part 10 is in a waiting state (state of power OFF) and the mentioned above viewing execution operating state is started, viewing of the program of this viewing reservation receives the waiting state set part 22b in the microcomputer 22 of the sub reception part 20 from main process device MPU 7 of the main reception part 10, when an end or a viewing reservation is canceled, directions of the purport that the original waiting state should be made to carry out return setting out of the main reception part 10 are made,

and this waiting state set part 22b makes the power supply of the main reception part 10 set it as the waiting state turned OFF by controlling the main power control part 23 according to these directions.

[0019] Next, operation of the main reception part 10 is explained in details. The tuner 2 can tune in the broadcasting signal specified from the broadcasting electric wave signals received with the antenna 1. In drawing 1, even if the broadcasting electric wave signal received with the antenna 1 is a case of the broadcasting electric wave signal by a satellite (a broadcasting satellite and a communications satellite), it does not matter even if it is a terrestrial radio wave signal. Although not represented on drawing 1, it may be a broadcasting signal received by cable cables, such as CATV.

[0020] The demodulator circuit 3 gets over according to the modulation method of the broadcasting signal tuned in with the tuner 2. The releasing scramble circuit 4 performs processing which is made to cancel this scramble processing and is restored to the demodulation signal which user can view, when the demodulation signal outputted from the demodulator circuit 3 is a signal by which scramble processing is carried out like the paid broadcasting program.

[0021] The demultiplexing circuit 5 from the transport stream information which is the demodulation signal restored to the state in which it can be viewed, and which is outputted from the releasing scramble circuit 4. PAT (Program Association Table) and PMT (Program Map Table) are acquired, based on PAT, PMT information which were acquired, transport packet ID needed in order to show a video signal, an audio signal, and the like is

extracted, the video signal and audio signal which are included in the transport packet which this transport packet ID shows and by which digital multiplexing was carried out are divided into a digital video signal and a digital sound signal. When scramble processing is performed to a video signal, an audio signal, and the like, as the paid broadcasting program and the like in the demultiplexing circuit 5, it is used also in order to extract ECM (Entitlement Control Message) used in order to acquire information required in order to cancel scramble from an IC card. Also, it is used in order to acquire the program information of the program by which broadcast will be planned the program broadcast now and from now on.

[0022] An image / audio processing circuit 6 decodes the digital video signal and digital sound signal which were separated by the demultiplexing circuit 5, decoding the signal forms in which user can view, and outputting it to the video signal output terminals 6a and the audio signal output terminal 6b, respectively. The video signal and audio signal of the mentioned above decrypted signal forms are made to compound audio information for a display, such as the screen information for a display or alarm sounds, such as a schedule for showing a TV viewer (user), and an audio message, and it is made to output to the video signal output terminals 6a and the audio signal output terminal 6b, respectively.

[0023] Main process device MPU 7 controls the suitable operation of presentation operation of the schedule of specification and the demultiplexing circuit 5 of the channel selection information on the tuner 2 or the video / audio processing circuit 6, and the like corresponding to the user's operation information received by the

communication bus 24. Besides the reservation timer 7a for setting viewing reservation time as main process device MPU 7, the viewing reservation registration part 7b for controlling the operation made to register into the non volatile field of the memory 8 by using program information of a viewing reservation, and the like as viewing reservation data, the viewing reservation release part 7c for canceling a viewing reserved state, and the purchase guide present part 7d for showing the purchase guide display about a paid broadcasting program, after this purchase guide display, when a TV viewer (user) performs a certain operation to a receiving set, it considers that this operation is the purchase operation for the purchase directions to a purchase guide display, and has the purchase detection part 7e which starts purchase processing operation. Although the case where main process device MPU 7 is equipped with the viewing reservation registration part 7b, the viewing reservation release part 7c, the purchase guide present part 7d, and the purchase detection part 7e is shown on this embodiment, of course, it does not matter even if it is a embodiment which makes various processings, such as the viewing reservation registration part 7b, the viewing reservation release part 7c, the purchase guide present part 7d, and the purchase detection part 7e, store in the non volatile field of the memory 8 instead of what is restricted in this case as a program, and makes it perform them.

[0024] The memory 8 includes a volatile field and a non volatile field, in order to write the momentary operating data at the time of the program and program execution which main process device MPU 7 performs, the program information extracted from the demultiplexing circuit 5 or

the program information by which the viewing reservation was made. The E-mail storage 8a which stores the E-mail for notifying various kinds of messages to a TV viewer (user) is prepared for the non volatile field of the memory 8 too.

[0025] IC card 9 acquires contract information based on the ECM information extracted from the demultiplexing circuit 5, and in the case of a pay-per-view PPV program, purchase processing is performed and the broadcasting signal with which scramble processing was made is canceled, and it is used in order to acquire the decryption key for restoring to the original broadcasting signal. It connects with a broadcast control center, and when a pay-per-view PPV program is purchased by the telephone line 13, the modem 11 is used, for example in order to transmit and receive the information about the purchase of a pay-per-view PPV program.

[0026] Next, an example of the operation about the viewing reservation registration in the digital broadcast receiving device according to this invention is explained according to the flow chart shown on drawing 2. First, when a TV viewer (user) directs presentation of a schedule by operation or remote control operation of the main part of a receiving set, this operation information, as mentioned above, it is detected with the microcomputer 22 by the user interface part (user I/F part) 21, and is notified to main process device MPU 7 of the main reception part 10 by the communication bus 24. Based on presentation directions of the schedule from a TV viewer (user), main process device MPU 7, based on the program information received by the demultiplexing circuit 5, by directing presentation operation of the schedule including the program broadcast

now and the program by which broadcast will be planned from now on to an image / audio processing unit 6, a display indication of the display screen of a schedule is given as an OSD (On Screen Display) screen.

[0027] The TV viewer (user) selects out of the display screen of the schedule by which it was indicated by the display arbitrary programs (in drawing 2) by operation or remote control operation of the main part of a receiving set. If the program H is chosen and a viewing reservation is directed, like the case of the mentioned above schedule presentation directions, it will be detected with the microcomputer 22 and will be notified to main process device MPU 7 of the main reception part 10 by the communication bus 24. In main process device MPU 7 which received the notice of the viewing reservation program, comparison with the broadcast times of a program (in drawing 2, it is the program H) and current time by which the viewing reservation was made is performed first (Step S1). When the program by which the viewing reservation was made is a program by which future broadcast is planned (in the case of YES of Step S1), a viewing reservation of this program is benefited for the following processings. That is, the check of being a paid broadcasting program is first made for this program. When it is a paid broadcasting program, based on the contract information transmitted together as program information, the information which shows whether they are month contract programs or it is a pay-per-view PPV program which carries out a purchasing contract for every program is acquired from the information registered into IC card 9.

[0028] When it is a pay-per-view PPV program, the purchase guide present part 7d (case of YES of Step S2) in main process device MPU 7, the pay-per-view PPV program purchase screen for checking the existence of purchase with the purchased amount of this pay-per-view PPV program (in drawing 2, program H PPV program can purchased for 100 yen, «Is reservation purchase carried out? »), a TV viewer (user) is made to choose about the existence of the reservation purchase of this pay-per-view PPV program by showing to a TV viewer (user) using an OSD (On Screen Display) screen the purchase guide screen, (Step S3). When a TV viewer (user) chooses the purport of the reservation purchase of this pay-per-view PPV program (in the case of YES of step S4), the viewing reservation registration part 7b in main process device MPU 7, the non volatile memory area of the memory 8 is made to carry out preservation registration of the viewing reservation registration information which directs a viewing reservation of the selected program like the case of free programs or the case of the contracted program of month contract programs as viewing reservation data (Step S5).

[0029] The viewing reservation time of this program is set to the reservation timer 7a in main process device MPU 7 of the main reception part 10, and the reservation timer 22a in the microcomputer 22 of the sub reception part 20 (Steps S6, S7).

[0030] Here, the reservation timer 7a in main process device MPU 7, and the reservation timer 22a in the microcomputer 22, when it reaches at the viewing reservation time of the program by which both viewing requests to print out files were made, are for generating an

event and notifying that to main process device MPU 7 and the microcomputer 22, respectively, usually, unless the main reception part 10 is waiting state (state of power OFF), it is used as a timer for the reservation timer 7a in main process device MPU 7 to supervise the viewing reservation time of a viewing reservation program.

[0031] On the other hand, the reservation timer 22a in the microcomputer 22 of the sub reception part 20, it is a timer for supervising the viewing reservation time of the viewing reservation program used when the main reception part 10 is in a waiting state (state of power OFF), when it reaches at this viewing reservation time, the main reception part 10 is returned to a normal state (state of a power turn), and it is used in order to make it set up so that viewing reserving operation may become possible.

[0032] The program which the TV viewer (user) made selection instructing of the viewing reservation (in drawing 2), when the program H is a pay-per-view PPV program, and not carrying out reservation purchase of this pay-per-view PPV program is chosen (in the case of NO of step S4), like the case of month contract programs of a paid broadcasting program, and the program of a non contract, the registration processing of a viewing reservation returns to the operation and a schedule is made to show, in order to perform a viewing reservation again, without being made (Step S8).

[0033] When the program (it is the program H in drawing 2) which the TV viewer (user) made selection instructing of the viewing reservation is a program broadcast now, the check of being paid broadcasting is made for this program like (the case of NO of Step S1), and the mentioned above step S2 or subsequent ones.

When it is a paid broadcasting program, based on the contract information transmitted together as program information, whether they are month contract programs or it is a pay-per-view PPV program which carries out a purchasing contract for every program, and selection information are acquired from the information registered into IC card 9.

[0034] When it is a pay-per-view PPV program, the purchase guide present part 7d in (case of YES of step S9) main process device MPU 7, by showing a TV viewer (user) with the purchased amount of this pay-per-view PPV program by using the pay-per-view PPV program purchase screen for checking the existence of purchase as an OSD (On Screen Display) screen, a TV viewer (user) is made to choose about the existence of the purchase of this pay-per-view PPV program (Step S10). When a TV viewer (user) chooses the purport of the purchase of this pay-per-view PPV program (in the case of YES of Step S11), in order to make it view the selected program like the case of free programs, and the case of the contracted program of month contract programs, the operation which is made to tune in the channel of a program with which selection of viewing was made, and is displayed promptly is started (Step S12).

[0035] On the other hand, when a TV viewer (user) chooses not purchasing this pay-per-view PPV program (in the case of NO of Step S11), the display action for viewing returns to the operation and a schedule is made to show again like the case of the program of month contract programs of a paid broadcasting program, and a non contract, without being made (Step S13).

[0036] Next, an example of the operation about viewing execution of the viewing reservation program in the digital broadcast receiving device according to this invention is explained according to the flow chart shown on drawing 3. When an event that the reservation timer 7a in main process device MPU 7 or the reservation timer 22a in the microcomputer 22 reached at the viewing reservation time of the program by which viewing reservation registration is carried out is generated, this event is notified to main process device MPU 7.

[0037] Main process device MPU 7 to the non volatile field of the memory 8 about the viewing reservation program which reached at viewing reservation time by the channel information of this viewing reservation program by which registration preservation is carried out as viewing reservation data. The channel which changes the tuner 2 and with which this viewing reservation program is broadcast is made to tune in (Step S21). Next, in order to acquire the program information about this viewing reservation program, PAT, PMT are acquired (Step S22), by setting up transport packet ID which shows the transport packet which presents video information, audio information, and the like of this viewing reservation program based on this PAT, PMT information, (Step S23), the applicable video information and audio information of a viewing reservation program are transmitted to an image / audio processing circuit 6 from the demultiplexing circuit 5.

[0038] On the other hand, when scramble processing of the paid broadcasting program is performed to video information, audio information, and the like, in order to acquire information (namely, descrambling key

information) required for release of this scramble state from IC card 9, packet ID of the ECM (Entitlement Control Message) information which multiplexes as a broadcasting signal and has been transmitted together is set up, contract information is checked by acquiring this ECM information and sending out this ECM information to IC card 9, and descrambling key information is extracted. When these paid broadcasting programs are not the pay-per-view PPV program that needs purchase for every program, but contract programs of a month unit here, descrambling key information is returned from IC card 9. When this paid broadcasting program is a pay-per-view PPV program which needs purchase for every program, it is necessary to newly direct the purchase start of this program.

[0039] Thus, when an applicable viewing reservation program is a pay-per-view PPV program (in the case of YES of Step S24), the purchase guide present part 7d in main process device MPU 7, the purchase guide display which checks whether the reservation purchase of a pay-per-view PPV program is started is made to output to the TV viewer (user) who makes a viewing reservation. The reservation purchase start initial screen format based on the video / audio information transmitted from a broadcasting station as a screen for the mentioned above purchase guide display here when it is within the preview period of this pay-per-view PPV program (in the case of YES of Step S25) (in drawing 3, «Reservation purchase is started. Please press any key»). A display output can be carried out using the initial screen format which shows the guide message), (Step S26). However, when having become out of the preview period of this pay-per-view PPV program (in the case of NO of Step S25), as a screen for the

mentioned above purchase guide display, as it is impossible to carry out a display output using the video / audio information from a broadcasting station, it will show around using an alarm sound or an audio guidance preliminary defined as notice information to which it shows the propriety of a reservation purchase start (Step S27).

[0040] This annunciator will be continued and displayed until a certain directions are inputted from a TV viewer (user). When a certain operational input from a TV viewer (user) occurs, the purchase detection part 7e in (case of YES of Step S28) main process device MPU 7, a TV viewer (user) interprets as specifying in the state where user can view a pay-per-view PPV program, and understanding the reservation purchase start of this pay-per-view PPV program, and performs purchase processing of this pay-per-view PPV program (Step S29). Namely, based on the contract information stored in IC card 9 by notifying directions of this reservation purchase start to IC card 9, and the information on ECM, the purchase of this pay-per-view PPV program is registered into IC card 9. The descrambling key information of this pay-per-view PPV program is generated, and it is returned from IC card 9.

[0041] Thus, in the releasing scramble circuit 4 the scramble state of the video information of this pay-per-view PPV program and audio information, presentation with the video information of a program and audio information is performed to a TV viewer (user) (Step S30) until it is canceled by the mentioned above descrambling key information acquired from IC card 9, it will be in the state in which user can view and it becomes broadcast finish time (in the case of NO of Step S31), when an

applicable viewing reservation program is not a pay-per-view PPV program, namely, when it is a free broadcast program (when it is NO of Step S24), when it is in the state in which user can view and is a paid broadcasting program, a month contract was made, until a scramble state is canceled in the releasing scramble circuit 4 by the descrambling key information returned from IC card 9 like the mentioned above, it will be in the state in which user can view and it becomes broadcast finish time, in Step S30, presentation with the video information of a program and audio information is performed to a TV viewer (user). As it will shift to the releasing operation of a viewing reservation if it reaches broadcast finish time (in the case of YES of Step S31), it progresses to Step S32.

[0042] As opposed to the annunciator which checks whether a viewing reservation program is a pay-per-view PPV program, and the reservation purchase start of this pay-per-view PPV program is performed on the other hand, when there is also no operational input from a TV viewer (user), (In the case of NO of Step S28), whether the purchase start directions time limit to the pay-per-view PPV program registered into IC card 9 which the response from IC card 9 shows has exceeded, and the annunciator of this reservation purchase start will continue, and will be displayed until one of time passes (it is next described as the time limit), when the time preliminary set arbitrarily from the broadcast start time of the viewing reservation program has passed. Thus, when this time limit has not passed, it returns to (the case of NO of Step S37), and Step S25, and an annunciator is made to continue.

[0043] On the other hand, by the time this time limit passes, when there is also no operational input from a TV viewer (user) (in the case of YES of Step S37), it is judged that a TV viewer (user) is absent, having interrupted the viewing reservation (the interruptive message of «interrupted reservation purchase as user was absent» in drawing 3) just to make sure, after carrying out a screen display (Step S38), a viewing reservation is canceled to a TV viewer (user) (discontinuation), as it is made to register with the E-mail storage 8a in which the E-mail which reports that fee collection is not made was formed to the non volatile field of the memory 8 (Step S39) and shifts to viewing reservation releasing operation, it progresses to Step S32. Inconvenience which will be charged is avoidable although the TV viewer (user) is not viewing the broadcast of a pay-per-view PPV program which made the viewing reservation by providing the mentioned above time limit represented from broadcast start time to writing profit, fixed time lapse, and the like.

[0044] If it progresses to Step S32, the viewing reservation release part 7c in main process device MPU 7 is started, the viewing reservation data registered into the non volatile field of the memory 8 is updated, and registration deletion will be performed in order to terminate a viewing reservation program (Step S32). At the time of viewing reservation registration, as shown on drawing 2, the viewing reservation release part 7c, it is made to update, so that the viewing reservation time of this program set to the reservation timer 7a in main process device MPU 7 of the main reception part 10 and the reservation timer 22a in the microcomputer 22 of the sub reception part 20 may be deleted (Step S33, S34).

[0045] Finally, when viewing execution operation of this viewing reservation is started, the viewing reservation release part 7c, when the main reception part 10 is started from the waiting state (state of OFF of a power supply) is judged (Step S35), when making it start from the waiting state of the main reception part 10 (in the case of YES of Step S35), it is directed to the waiting state set part 22b in the microcomputer 22 of the sub reception part 20 that return setting out of the main reception part 10 should be carried out at a waiting state. By controlling the main power control part 23, the directed waiting state set part 22b turns OFF the power supply of the main reception part 10, and returns the main reception part 10 to a waiting state again (Step S36). And even when execution of viewing execution operation of a viewing reservation is completed by making the return operation to the waiting state of the main reception part 10 perform automatically, and a TV viewer (user) is absent, the inconvenience by which electric power is consumed superfluously can be prevented. On the other hand, when it is not starting from the waiting state of the main reception part 10 (in the case of NO of Step S35), viewing reserving operation is ended or interrupted as it is. [0046]

[Effect of the invention] As explained above, an operation effect as shown below can be obtained in the digital broadcast receiving device according to this invention.

[0047] Even if it is a case where the TV viewer (user) became absent and the situation in which user cannot view a paid broadcasting program (for example, pay-per-view PPV program) occurs according to the mentioned above claim 1, as it is set as the state where the purchase of this paid broadcasting program is canceled, a viewing

reservation is canceled automatically (cancellation), and fee collection is not started, even if it is when a TV viewer (user) cannot view like conventional technology, a viewing reservation is fulfilled, and inconvenient generating can be deterred at the time charged.

[0048] If it is within the preview period of a pay-per-view PPV program when making the purchase guide display which it shows to whether purchase is made to start show according to the mentioned above claim 2 (namely, when viewing execution operation of a viewing reservation is started), by the video / audio information of this pay-per-view PPV program broadcast. Executing the annunciator which checks a purchase start to a TV viewer (user), and on the other hand, if it is outside a preview period, as an annunciator is carried out to a TV viewer (user) by the alarm sound and audio guidance which were preliminary defined as notice information for guiding the propriety of a reservation purchase start, although viewing of the video information and audio information which are broadcast is barred superfluously, inconvenience is avoidable at the time.

[0049] According to the mentioned above claim 3, when a TV viewer (user) is absent, by the waiting state which shows a power OFF state. When the viewing reservation start of the paid broadcasting program is started and release of a viewing reservation is made, it is possible to make it return to the mentioned above waiting state automatically again, and inconvenient generating can be prevented at the time by which the electric power of a digital broadcast receiving device is consumed vainly.

[0050] According to the mentioned above claim 4, the E-mail which shows that the viewing reservation was canceled is saved when release of a viewing reservation is made even if a viewing reservation of a paid broadcasting program is started when a TV viewer (user) is absent, it can check that the fee collection about the paid broadcasting program to which the TV viewer (user) is not viewing after going home is not made.

[Brief description of the drawings]

[Drawing 1] is a system configuration drawing showing the fundamental system configuration about the digital broadcast receiving device according to this invention.

[Drawing 2] is a flow chart which shows an example of the operation about the viewing reservation registration in the digital broadcast receiving device according to this invention.

[Drawing 3] is a flow chart which shows an example of the operation about viewing execution of the viewing reservation program in the digital broadcast receiving device according to this invention.

[Description of numerals]

- 1 ... An antenna,
- 2... A tuner,
- 3... A demodulator circuit,
- 4... A releasing scramble circuit,
- 5... A demultiplexing circuit,
- 6... A video / audio processing circuit,
- 6a... A video signal output terminal,
- 6b... An audio signal output terminal,
- 7... A main process device MPU,

- 7a... A reservation timer,
- 7b... A viewing reservation registration part,
- 7c... A viewing reservation release part,
- 7d... A purchase guide present part,
- 7e ... A purchase detection part,
- 8... A memory,
- 8a... An E-mail storage,
- 9... An IC card,
- 10... A main reception part,
- 11... A modem,
- 12... A system bus,
- 13... A telephone line,
- 20... A sub reception part,
- 21... A user interface part (user I/F part),
- 22... A microcomputer,
- 22a... A reservation timer,
- 22b... A waiting state set part,
- 23... A main power control part,
- 24... A communication bus

